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L43 ANSWER 1 OF 2 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1994:287655 BIOSIS
DN PREV199497300655
TI **Flow cytometric analysis** of adhesion molecule and activation markers expression on human gastric intraepithelial lymphocytes and epithelial cells in patients with H. pylori infection.
AU Fan, X. J.; Long, A.; Fan, X. G.; Keeling, P. W. N.; **Kelleher, D.**
CS Dep. Clin. Med., St. James Hosp., Trinity Coll., Dublin Ireland
SO Gastroenterology, (1994) Vol. 106, No. 4 SUPPL., pp. A1025.
Meeting Info.: 95th Annual Meeting of the American Gastroenterological Association New Orleans, Louisiana, USA May 15-18, 1994
ISSN: 0016-5085.
DT **Conference**
LA English
CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**
Cytology and Cytochemistry - Human *02508
Biochemical Studies - General 10060
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Biochemical Studies - Carbohydrates 10068
Pathology, General and Miscellaneous - Inflammation and Inflammatory Disease *12508
Metabolism - General Metabolism; Metabolic Pathways *13002
Metabolism - Metabolic Disorders *13020
Digestive System - Pathology *14006
Blood, Blood-Forming Organs and Body Fluids - Blood Cell Studies *15004
Blood, Blood-Forming Organs and Body Fluids - Lymphatic Tissue and Reticuloendothelial System *15008
Immunology and Immunochemistry - Bacterial, Viral and Fungal *34504
Medical and Clinical Microbiology - Bacteriology *36002
BC Aerobic Helical or Vibrioid Gram-Negatives 06210
Hominidae *86215
IT Major Concepts
Blood and Lymphatics (Transport and Circulation); Cell Biology; Gastroenterology (Human Medicine, Medical Sciences); Immune System (Chemical Coordination and Homeostasis); Infection; Metabolism; Pathology
IT Miscellaneous Descriptors
CELL-MEDIATED IMMUNITY; DUODENAL ULCER; GASTRITIS; MEETING ABSTRACT
ORGN Super Taxa
Aerobic Helical or Vibrioid Gram-Negatives: Eubacteria, Bacteria; Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
aerobic helical or vibrioid gram-negative bacteria (Aerobic Helical or Vibrioid Gram-Negatives); Helicobacter pylori (Aerobic Helical or Vibrioid Gram-Negatives); Hominidae (Hominidae)
ORGN Organism Superterms
animals; bacteria; chordates; eubacteria; humans; mammals; microorganisms; primates; vertebrates

L43 ANSWER 2 OF 2 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1993:355156 BIOSIS
DN PREV199345038581
TI **Flow cytometric analysis** of intraepithelial lymphocytes from human small intestinal biopsies reveals populations of CD4-positive CD8-positive and CD8-alpha-alpha-positive cells.
AU Lynch, S. (1); **Kelleher, D.**; Feighery, C.; Weir, D.; O'Farrelly, C.
CS (1) Dep. Immunol., St. James's Hospital, Dublin 8 Ireland
SO Gastroenterology, (1993) Vol. 104, No. 4 SUPPL., pp. A1049.
Meeting Info.: 94th Annual Meeting of the American Gastroenterological Association Boston, Massachusetts, USA May 15-21, 1993
ISSN: 0016-5085.
DT **Conference**
LA English
CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**
Cytology and Cytochemistry - Human *02508
Digestive System - Physiology and Biochemistry *14004
Blood, Blood-Forming Organs and Body Fluids - Lymphatic Tissue and Reticuloendothelial System *15008
Immunology and Immunochemistry - Immunopathology, Tissue Immunology *34508
BC Hominidae *86215
IT Major Concepts
Blood and Lymphatics (Transport and Circulation); Cell Biology; Clinical Immunology (Human Medicine, Medical Sciences); Digestive System (Ingestion and Assimilation)
IT Chemicals & Biochemicals
CD8
IT Miscellaneous Descriptors
ABSTRACT; GASTROINTESTINAL TRACT; SINGLE CELL SUSPENSION
ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
Hominidae (Hominidae)
ORGN Organism Superterms
animals; chordates; humans; mammals; primates; vertebrates
RN 59596-56-4 (CD8)

=> d all tot

L80 ANSWER 1 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2001:484081 BIOSIS
DN **PREV200100484081**
TI Double biological **microchip**: Use for investigation of biochemical reactions.
AU Zasedateleva, O. A. (1); Krylov, A. S. (1); Sharonov, A. Yu. (1); Mirzabekov, A. D. (1)
CS (1) Engelhardt Institute of Molecular Biology, Russian Academy of Sciences, ul. Vavilova, 32, Moscow, 117984 Russia
SO Sensornye Sistemy, (January March, 2001) Vol. 15, No. 1, pp. 85-92. print.
ISSN: 0235-0092.
DT Article
LA Russian
SL English; Russian
AB A new, so called double biological **microchip** (double **biochip**) was created for investigation of biochemical reactions. The **biochip** is a glass slide bearing hundreds microscopic gel pads. Immobilized in each pad is a short piece of DNA up to hundreds of nucleotides. The oligonucleotides are capable of hybridizing with fluorescently labeled complementary fragments of DNA. The level of hybridization is measured by the intensity of fluorescence signal. The proposed **method** is based on parallel fabrication of two **biochips** followed by their parallel hybridization with DNA or

proteins. One of the **biochips** is then used to study a particular reaction, the other serves as the control. Melting of two oligonucleotides was chosen as a model reaction: one oligonucleotide was melted under standard conditions, whereas the other was melted in the presence of specific ligand. The **method** have been used to study the influence of some factors (ionic strength, ligands) on the melting of double stranded oligonucleotides on the **biochip**. The **method** is suitable for all kinds of processes: melting, hybridization, enzyme reactions (PCR, ligation).

CC Genetics and Cytogenetics - General *03502
Biochemical Studies - Nucleic Acids, Purines and Pyrimidines *10062

IT Major Concepts
Molecular Genetics (Biochemistry and Molecular Biophysics); Equipment, Apparatus, Devices and Instrumentation

IT Chemicals & Biochemicals
DNA; oligonucleotides

IT Methods & Equipment
double biological **microchip**: equipment

IT Miscellaneous Descriptors
biochemical reactions; hybridization

L80 ANSWER 2 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2001:464502 BIOSIS
DN **PREV200100464502**
TI Biotechnology: Updates and new developments.
AU Chang, Sushila K. (1)
CS (1) Centre for Life Sciences and Chemical Technology, NgeeAnn Polytechnic, Singapore Singapore
SO Biomedical and Environmental Sciences, (June, 2001) Vol. 14, No. 1-2, pp. 32-39. print.
Meeting Info.: Proceedings of the 3rd Asian Conference on Food Safety and Nutrition Beijing, China October 03-06, 2000 Chinese Academy of Preventive Medicine
. ISSN: 0895-3988.
DT Conference
LA English
SL English
CC General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals *00520
Cytology and Cytochemistry - Animal *02506
Cytology and Cytochemistry - Human *02508
Food Technology - General; Methods *13502
Food and Industrial Microbiology - General and Miscellaneous *39008

IT Major Concepts
Bioprocess Engineering; Foods

IT Parts, Structures, & Systems of Organisms
stem cells

IT Methods & Equipment
biochips

IT Miscellaneous Descriptors
bioinformatics; biotechnology; computer databases; food development; food processing; genetically modified food: food; genetically modified plants; pharmacogenomics; Meeting Abstract

ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name
human (Hominidae)

ORGN Organism Superterms
Animals; Chordates; Humans; Mammals; Primates; Vertebrates

L80 ANSWER 3 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2001:454944 BIOSIS
DN **PREV200100454944**
TI **Biochip** detection system.
AU Watson, Robert Malcolm, Jr. (1); Chaudhry, Haseeb R.; Lee, James S.
CS (1) San Leandro, CA USA

ASSIGNEE: Alpha Innotech Corporation, San Leandro, CA, USA
PI US 6271042 August 07, 2001
SO Official Gazette of the United States Patent and Trademark Office Patents, (Aug. 7, 2001) Vol. 1249, No. 1, pp. No Pagination. e-file. ISSN: 0098-1133.
DT Patent
LA English
AB A **biochip** detection system detects and locates samples that are labeled with multiple fluorescent tags and are located on a **biochip**. This **biochip** detection system includes a charge coupled device (CCD) sensor, a broad spectrum light source, a lens, a light source filter, and a sensor filter. The CCD sensor comprises two dimensional CCD **arrays** to simultaneously detect light waves from at least a substantial portion of the **biochip**. The broad spectrum light source is optically coupled to the CCD sensor and is configured to be utilized with a variety of different fluorescent tags which have differing excitation wavelengths.
NCL 436172000
IT Major Concepts
Equipment, Apparatus, Devices and Instrumentation
IT Chemicals & Biochemicals
fluorescent tags
IT Methods & Equipment
biochip detection system: laboratory equipment; charge coupled device: equipment

L80 ANSWER 4 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2001:358714 BIOSIS
DN **PREV200100358714**
TI The Flow-Thru **ChipTM**: A three-dimensional **biochip** platform.
AU Steel, Adam (1); Torres, Matt (1); Hartwell, John (1); Yu, Yong-Yi (1); Ting, Nan (1); Hoke, Glenn (1); Yang, Hongjun (1)
CS (1) Gene Logic, Inc., Gaithersburg, MD USA
SO Schena, Mark. (2000) pp. 87-117. Microarray biochip technology. print. Publisher: Eaton Publishing 154 E. Central Street, Natick, MA, 01760, USA. ISBN: 1-881299-37-6 (cloth).
DT Book
LA English
SL English
CC Biochemical Studies - Nucleic Acids, Purines and Pyrimidines *10062
Genetics and Cytogenetics - General *03502
IT Major Concepts
Molecular Genetics (Biochemistry and Molecular Biophysics); Equipment, Apparatus, Devices and Instrumentation; **Methods** and Techniques
IT Chemicals & Biochemicals
DNA: **analysis**, synthesis; RNA: **analysis**
IT Methods & Equipment
Flow-Thru **Chip**: applications, **chip** geometry, cleaning, design, laboratory equipment, performance, preparation, three-dimensional **biochip** platform
IT Miscellaneous Descriptors
Book Chapter

L80 ANSWER 5 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2001:355518 BIOSIS
DN **PREV200100355518**
TI **Microarray biochip** technology.
AU Schena, Mark (1)
CS (1) TeleChem/arrayit.com, 524 E. Weddell Drive, Suite 3, Sunnyvale, CA, 94089-2115 USA
SO Schena, Mark. (2000) pp. i-xiv, 1-298, A1-A32. Microarray biochip technology. print.
Publisher: Eaton Publishing 154 E. Central Street, Natick, MA, 01760, USA. ISBN: 1-881299-37-6 (cloth).

DT Book .
LA English
SL English
AB This book includes thirteen separately authored chapters on all of the main areas of **microarray** technology, including theory, sample preparation and labeling, manufacturing **methods**, fluorescent imaging, and data **analysis** and mining. It is written for anyone interested in **biochips**. The volume includes bibliographical references, a list of selected suppliers, and an index.
CC Biochemical Studies - Nucleic Acids, Purines and Pyrimidines *10062
Genetics and Cytogenetics - General *03502
IT Major Concepts
Molecular Genetics (Biochemistry and Molecular Biophysics); Equipment, Apparatus, Devices and Instrumentation; **Methods** and Techniques
IT Chemicals & Biochemicals
DNA: **analysis**
IT Methods & Equipment
biochip: laboratory equipment; **microarray biochip** techniques: Molecular Biology Techniques and Chemical Characterization, **analytical method**, molecular genetic **method**

L80 ANSWER 6 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2001:334745 BIOSIS
DN **PREV200100334745**
TI **Method** of making **biochips** and the **biochips** resulting therefrom.
AU Hahn, Soonkap (1); Fagnani, Roberto
CS (1) San Clemente, CA USA
ASSIGNEE: Biocept, Inc., Carlsbad, CA, USA
PI US 6174683 January 16, 2001
SO Official Gazette of the United States Patent and Trademark Office Patents, (Jan. 16, 2001) Vol. 1242, No. 3, pp. No Pagination. e-file. ISSN: 0098-1133.
DT Patent
LA English
AB **Methods** for preparing a **biochip** are provided herein wherein the biomolecular probe to be used with the **biochip** is alternatively bound to a hydrogel prepolymer prior to or simultaneously with polymerization of the prepolymer. In particularly preferred embodiments, a polyurethane-based hydrogel prepolymer is derivatized with an organic solvent soluble biomolecule, such as a peptide nucleic acid probe in aprotic, organic solvent. Following derivatization of the prepolymer, an aqueous solution, for example sodium bicarbonate, preferably buffered to a pH of about 7.2 to about 9.5, is added to the derivatized prepolymer solution to initiate polymerization of the hydrogel. Alternatively, a water soluble biomolecule, such as DNA or other oligonucleotide, is prepared in an aqueous solution and added to the polyurethane-based hydrogel prepolymer such that derivatization and polymerization occur, essentially, simultaneously. While the hydrogel is polymerizing, it is microspotted onto a solid substrate, preferably a silanated glass substrate, to which the hydrogel microdroplet becomes covalently bound. Most preferably the hydrogel microdroplets are at least about 30 mum thick, for example about 50 mum to about 100 mum thick. The resulting **biochips** are particularly useful for gene discovery, gene characterization, functional gene **analysis** and related studies.
NCL 435006000
IT Major Concepts
Molecular Genetics (Biochemistry and Molecular Biophysics); Bioprocess Engineering; **Methods** and Techniques
IT Chemicals & Biochemicals
biomolecular probe
IT Methods & Equipment
functional gene **analysis**: molecular **method**; gene

characterization: molecular **method**; gene discovery: molecular **method**
IT Miscellaneous Descriptors
biochip

L80 ANSWER 7 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2001:324845 BIOSIS
DN **PREV200100324845**
TI **Microchips, microarrays, biochips** and **nanochips**: Personal laboratories for the 21st century.
AU Kricka, Larry J. (1)
CS (1) Department of Pathology and Laboratory Medicine, University of Pennsylvania Medical Center, Philadelphia, PA, 19104 USA
SO Clinica Chimica Acta, (May, 2001) Vol. 307, No. 1-2, pp. 219-223. print.
ISSN: 0009-8981.
DT Article
LA English
SL English
AB Micro miniaturization of **analytical** procedures is having significant impact on diagnostic testing, and will enable highly complex clinical testing to be miniaturized and permit testing to move from the central laboratory into non-laboratory settings. The diverse range of micro **analytical** devices includes **microchips**, gene **chips**, bioelectronic **chips**. They have been applied to several clinically important **assays** (e.g., PCR, **immunoassay**). The main advantages of the new devices are integration of multiple steps in complex **analytical** procedures, diversity of application, sub-microliter consumption of reagents and sample, and portability. These devices form the basis of new and smaller **analyzers** (e.g., capillary electrophoresis) and may ultimately be used in even smaller devices useful in decentralized testing (lab-on-a-**chip**, personal laboratories). The impact of **microchips** on healthcare costs could be significant via timely intervention and monitoring, combined with improved treatments (e.g., **microchip** -based pharmacogenomic tests). Empowerment of health consumers to perform self-testing is limited, but **microchips** could accelerate this process and so produce a level of self-awareness of biochemical and genetic information hitherto unimaginable. The next level of miniaturization is the **nanochip** (nanometer-sized features) and the technological foundation for these futuristic devices is discernable in nanotubes and self-assembling molecular structures.
CC Biophysics - Bioengineering *10511
IT Major Concepts
Biomaterials
IT Methods & Equipment
biochips: equipment; **microarrays**: **analytical method**; **microchips**: equipment; **nanochips**: equipment
IT Miscellaneous Descriptors
microminiaturization; personal laboratories

L80 ANSWER 8 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2001:145920 BIOSIS
DN **PREV200100145920**
TI Multiparametric microsensor **chips** for screening applications.
AU Ehret, R.; Baumann, W.; Brischwein, M.; Lehmann, M.; Henning, T.; Freund, I.; Drechsler, S.; Friedrich, U.; Hubert, M.-L.; Motrescu, E.; Kob, A.; Palzer, H.; Grothe, H.; Wolf, B. (1)
CS (1) Heinz-Nixdorf-Lehrstuhl fuer Medizinische Elektronik, Technische Universitaet Muenchen, Arcisstrasse 21, 80333, Muenchen: ralf.ehret@biologie.uni-rostock.de Germany
SO Fresenius' Journal of Analytical Chemistry, (January, 2001) Vol. 369, No. 1, pp. 30-35. print.
ISSN: 0937-0633.
DT Article
LA English

SL English
AB The identification of drug targets for pharmaceutical screening can be greatly accelerated by gene databases and expression studies. The identification of leading compounds from growing libraries is realized by **high throughput** screening platforms. Subsequently, for optimization and validation of identified leading compounds studies of their functionality have to be carried out, and just these functionality tests are a limiting factor. A rigorous preselection of identified compounds by in vitro cellular screening is necessary prior to using the drug candidates for the further time consuming and expensive stage, e.g. in animal models. Our efforts are focused to the parallel development, adaptation and integration of different microelectronic sensors into miniaturized **biochips** for a multiparametric, functional on-line **analysis** of living cells in physiologically environments. Parallel and on-line acquisition of data related to different cellular targets is required for advanced stages of drug screening and for economizing animal tests.
CC **Cytology and Cytochemistry - Animal *02506**
Cytology and Cytochemistry - Human *02508
Physiology, General and Miscellaneous - General *12002
Pathology, General and Miscellaneous - Therapy *12512
Pharmacology - General *22002
Pharmacology - Clinical Pharmacology *22005
BC Animalia - Unspecified 33000
IT Major Concepts
Equipment, Apparatus, Devices and Instrumentation; **Methods** and Techniques; Pharmacology
IT Chemicals & Biochemicals
drug candidates: evaluation, pharmaceuticals
IT Methods & Equipment
SEM [scanning electron microscopy]: electron microscopy: CT, microscopy **method**; biosensors: **analytical method**, applications, equipment, molecular probe techniques; multiparametric microsensor **chips**: applications, descriptions, design, equipment, uses; pharmaceutical screening: Molecular Biology Techniques and Chemical Characterization, applications, screening **method**
IT Miscellaneous Descriptors
biochip technology: applications; biotechnology; drug targets: identification; physiology
ORGN Super Taxa
Animalia; Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
LS 174T cell line (Hominidae); animals (Animalia)
ORGN Organism Superterms
Animals; Chordates; Humans; Mammals; Primates; Vertebrates

L80 ANSWER 9 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2000:469098 BIOSIS
DN **PREV200000469098**
TI Electric readout **biochips** for cell based screening.
AU Brischwein, M. (1); Baumann, W. (1); Drechsler, S. (1); Ehret, R. (1); Lehmann, M. (1); Motrescu, E. R. (1); Wolf, B. (1)
CS (1) Dept. of Biophysics, Universitaet Rostock, Wismarsche Strasse 8, D-18057, Rostock Germany
SO European Biophysics Journal, (2000) Vol. 29, No. 4-5, pp. 375. print.
Meeting Info.: 3rd European Biophysics Congress Munchen, Germany September 09-13, 2000
ISSN: 0175-7571.
DT Conference
LA English
SL English
CC **Cytology and Cytochemistry - General *02502**
General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals *00520
Developmental Biology - Embryology - General and Descriptive *25502
BC Organisms - Unspecified 00500

IT Major Concepts
Cell Biology; Equipment, Apparatus, Devices and Instrumentation
IT Methods & Equipment
electric readout **biochip**: biosensor, development, equipment
IT Miscellaneous Descriptors
cell based screening; Meeting Abstract
ORGN Super Taxa
Organisms
ORGN Organism Name
organism (Organisms)

L80 ANSWER 10 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2000:313756 BIOSIS
DN **PREV200000313756**
TI XNA on GoldTM: Universal platform for building intelligent **biochips**.
AU Ortigao, Flavio Ramalho (1); Mecklenburg, Michael (1); Cieplik, Michael (1)
CS (1) INTERACTIVA Biotechnology, Sedanstrasse 10, D-89077, Ulm Germany
SO Biomolecular Engineering, (May, 2000) Vol. 16, No. 5, pp. 150. print.
Meeting Info.: First International Conference on (Strept) Avidin-Biotin Technologies Alberta, Canada June 18-21, 2000
ISSN: 1389-0344.
DT Conference
LA English
SL English
CC Biochemical Methods - General *10050
Genetics and Cytogenetics - General *03502
Biochemical Studies - General *10060
Biophysics - Bioengineering *10511
Biophysics - Molecular Properties and Macromolecules *10506
General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals *00520
IT Major Concepts
Biochemistry and Molecular Biophysics; **Methods** and Techniques
IT Chemicals & Biochemicals
DNA; RNA; XNA on Gold; avidin: applications, uses; biomolecules: immobilization; biotin: applications, uses; **proteins**; saccharides; streptavidin: applications, uses
IT Methods & Equipment
DNA **biochips**: applications, equipment; intelligent **biochips**: applications, equipment
IT Miscellaneous Descriptors
XNA on Gold affinity **array** technology: applications; biotechnology; **microarray** technology; Meeting Abstract
RN 58-85-5 (BIOTIN)
9013-20-1 (STREPTAVIDIN)

L80 ANSWER 11 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 2000:4077 BIOSIS
DN **PREV200000004077**
TI **High-throughput microarray**-based enzyme-linked immunosorbent **assay** (ELISA.
AU Mendoza, L. G. (1); McQuary, P.; Mongan, A.; Gangadharan, R.; Brignac, S.; Eggers, M.
CS (1) Genometrix, 3608 Research Forest Drive, Suite B7, The Woodlands, TX, 77381 USA
SO Biotechniques, (Oct., 1999) Vol. 27, No. 4, pp. 778-788.
ISSN: 0736-6205.
DT Article
LA English
SL English
AB A new generation **biochip** is described as capable of supporting **high-throughput** (HT), multiplexed enzyme-linked immunosorbent **assays** (ELISAs). These **biochips** consist of an optically flat, glass plate containing 96 wells formed by an

enclosing hydrophobic Teflon(R) mask. The footprint dimensions of each well and the plate precisely match those of a standard microplate. Each well contains four identical 36-element **arrays** (144 elements per well) comprising 8 different antigens and a marker **protein**. **Arrays** are formed by a custom, continuous flow, capillary-based print head attached to a precise, **high-speed**, X-Y-Z robot. The **array** printing capacity of a single robot exceeds 20 000 **arrays** per day. **Arrays** are quantitatively imaged using a custom, **high**-resolution, scanning charge-coupled device (CCD) detector with an imaging **throughput** of 96 **arrays** every 30 s. Using this new process, **arrayed** antigens were individually and collectively detected using standard ELISA techniques. Experiments demonstrate that specific multiplex detection of **protein** antigens **arrayed** on a glass substrate is feasible. Because of the open **microarray** architecture, the 96-well **microarray** format is compatible with automated robotic systems and supports a low-cost, highly parallel **assay** format. Future applications of this new **high-throughput** screening (HTS) format include direct cellular **protein** expression profiling, multiplexed **assays** for detection of infectious agents and cancer diagnostics.

CC Biophysics - General Biophysical Techniques *10504
Biochemical Studies - Proteins, Peptides and Amino Acids *10064
Enzymes - Methods *10804
Immunology and Immunochemistry - General; Methods *34502

IT Major Concepts
Equipment, Apparatus, Devices and Instrumentation; **Methods** and Techniques

IT Chemicals & Biochemicals
proteins

IT Methods & Equipment
ELISA: detection **method**, detection/labeling techniques; **biochip**: equipment; scanning charge-coupled device detector: equipment

L80 ANSWER 12 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1999:469908 BIOSIS
DN **PREV199900469908**
TI Simultaneous multi-**analyte analysis** by **biochip** technology.
AU Mcconnell, I. V. (1); Lamont, J. V. (1); Fitzgerald, S. P. (1)
CS (1) R and D, Randox Laboratories Ltd., Crumlin UK
SO Clinical Chemistry and Laboratory Medicine, (June, 1999) Vol. 37, No. SPEC. SUPPL., pp. S394.
Meeting Info.: IFC-WorldLab, International Federation of Clinical and Laboratory Medicine (17th International and 13th European Congress of Clinical Chemistry and Laboratory Medicine, 1st International Congress of Clinical Molecular Biology, 31st National Congress of the Italian Society of Clinical Biochemistry and Clinical Molecular Biology) Florence, Italy June 6-11, 1999 International Federation of Clinical and Laboratory Medicine
. ISSN: 1434-6621.
DT Conference
LA English
CC Endocrine System - General *17002
Biochemical Studies - General *10060
Biophysics - General Biophysical Studies *10502
Reproductive System - General; Methods *16501
General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals *00520
BC Hominidae 86215
IT Major Concepts
Endocrine System (Chemical Coordination and Homeostasis); Equipment, Apparatus, Devices and Instrumentation
IT Chemicals & Biochemicals
prolactin: sex hormone; FSH [follicle stimulating hormone]: sex

• hormone; LH [luteinizing hormone]: sex hormone
IT Methods & Equipment
biochip assay: immunoassay method
; chemiluminescence detection: detection **method**; fertility hormone **biochip**: medical equipment; sulphanamide **biochip**: medical equipment; Abbott AxSym: medical equipment; CCD camera: equipment
IT Miscellaneous Descriptors
Meeting Abstract; Meeting Poster
ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
human (Hominidae)
ORGN Organism Superterms
Animals; Chordates; Humans; Mammals; Primates; Vertebrates
RN 9002-68-0 (FSH)
9002-68-0 (FOLLICLE STIMULATING HORMONE)
9002-67-9 (LUTEINIZING HORMONE)
9002-62-4 (PROLACTIN)

L80 ANSWER 13 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1999:402404 BIOSIS
DN **PREV199900402404**
TI Simultaneous multi-**analyte analysis** by **biochip** technology.
AU Lamont, J. V. (1); McConnell, R. I. (1); Fitzgerald, S. P. (1)
CS (1) Randox Laboratories Limited, Diamond Road, Crumlin UK
SO Clinical Chemistry, (June, 1999) Vol. 45, No. 6 PART 2, pp. A102-A103. Meeting Info.: 51st Annual Meeting of the American Association of Clinical Chemistry New Orleans, Louisiana, USA July 25-29, 1999 American Association of Clinical Chemistry
. ISSN: 0009-9147.
DT Conference
LA English
CC Biochemical Methods - General *10050
Radiation - General *06502
Biochemical Studies - General *10060
Chemotherapy - General; Methods; Metabolism *38502
Endocrine System - General *17002
General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals *00520
IT Major Concepts
Biochemistry and Molecular Biophysics; **Methods** and Techniques
IT Chemicals & Biochemicals
lutenizing hormone [luteinizing hormone]; prolactin; sulfadiazine; sulfamethazine; sulfathiazole; sulfonamide antibiotics; FSH
IT Methods & Equipment
immunoassay: analytical method; Abbott AxSym **assay: analytical method**; Delfia **assay: analytical method**; HPLC [high performance liquid chromatography]: **analytical method**; LCMS [liquid chromatography-mass spectrometry]: **analytical method**
IT Miscellaneous Descriptors
biochip; Meeting Abstract; Meeting Poster
RN 9002-68-0 (FSH)
9002-67-9 (LUTEINIZING HORMONE)
9002-62-4 (PROLACTIN)
68-35-9 (SULFADIAZINE)
57-68-1 (SULFAMETHAZINE)
72-14-0 (SULFATHIAZOLE)

L80 ANSWER 14 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1999:293931 BIOSIS
DN **PREV199900293931**
TI Multiparametric **biochips** for cell-based screening.

AU Brischwein, Martin (1); Baumann, Werner (1); Lehmann, Mirko (1); Ehret, Ralf (1); Schwinde, Anne (1); Wolf, Bernhard (1)
CS (1) Fachbereich Biologie, Biophysik, Universitaet Rostock, Wismarsche Strasse 8, 18057, Rostock Germany
SO European Journal of Cell Biology, (1999) Vol. 78, No. SUPPL. 49, pp. 83. Meeting Info.: 23rd Annual Meeting of the German Society for Cell Biology Rostock, Germany March 14-18, 1999 German Society for Cell Biology . ISSN: 0171-9335.
DT Conference
LA English
CC Biophysics - General Biophysical Techniques *10504
Cytology and Cytochemistry - Human *02508
General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals *00520
BC Hominidae 86215
IT Major Concepts
Methods and Techniques
IT Parts, Structures, & Systems of Organisms
granulocyte
IT Methods & Equipment
multiparametric **biochip: analytical method**
IT Miscellaneous Descriptors
cell-based screening; Meeting Abstract; Meeting Poster
ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
human (Hominidae); LS 174 T cell line (Hominidae)
ORGN Organism Superterms
Animals; Chordates; Humans; Mammals; Primates; Vertebrates

L80 ANSWER 15 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1999:293920 BIOSIS
DN **PREV199900293920**
TI Cellular behaviour as a signal source for multiparametric **biochips** .
AU Ehret, Ralf (1); Baumann, Werner (1); Brischwein, Martin (1); Lehmann, Mirko (1); Kraus, Michael (1); Henning, Tobias (1); Freund, Ingo (1); Schwinde, Anne (1); Bitzenhofer, Matthias (1); Wolf, Bernhard (1)
CS (1) Fachbereich Biologie, Biophysik, Universitaet Rostock, Wismarsche Strasse 8, 18051, Rostock Germany
SO European Journal of Cell Biology, (1999) Vol. 78, No. SUPPL. 49, pp. 10. Meeting Info.: 23rd Annual Meeting of the German Society for Cell Biology Rostock, Germany March 14-18, 1999 German Society for Cell Biology . ISSN: 0171-9335.
DT Conference
LA English
CC **Cytology and Cytochemistry - General *02502**
Biophysics - General Biophysical Techniques *10504
General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals *00520
BC Organisms - Unspecified 00500
IT Major Concepts
Cell Biology; **Methods** and Techniques
IT Parts, Structures, & Systems of Organisms
cell: **analysis**
IT Methods & Equipment
multiparametric **biochip: analytical method**
; Cell-Monitoring System: **analytical method**
IT Miscellaneous Descriptors
Meeting Abstract
ORGN Super Taxa
Organisms
ORGN Organism Name
eukaryote (Organisms)

L80 ANSWER 16 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AN 1999:274410 BIOSIS
DN **PREV199900274410**
TI Trends in molecular diagnostics.
AU Foedinger, Manuela (1); Sunder-Plassmann, Gere; Wagner, Oswald F.
CS (1) Klinisches Institut fuer Medizinische und Chemische Labordiagnostik, Universitaet Wien, Waehringer Guertel 18-20, A-1090, Wien Austria
SO Wiener Klinische Wochenschrift, (April 23, 1999) Vol. 111, No. 8, pp. 315-319.
ISSN: 0043-5325.
DT Article
LA German
SL English; German
AB The number of characterized monogenic and polygenic diseases is rising each year. In consequence, molecular diagnostics is faced with an ever increasing number of patient samples and with more and more heterogeneous genetic defects. The fusion of microelectronics and molecular biology has created a new technology (microelectronic miniaturization), which provides a rapid, efficient, and cost-effective tool in molecular diagnostics at a **high**-sample **throughput**. The **biochip** has recently been selected as one of the ten scientific highlights in the year 1998. The application of microelectronics ranges from the polymerase chain reaction (PCR), nucleotide sequence **analysis** via DNA-**chips** or capillary electrophoresis-**chips** to gene expression **analysis**. These **microchips** are suited for integration into fully automated systems, thus providing the basis for automation of molecular diagnostics. The present article summarizes important trends in molecular diagnostics and provides a glimpse on future technologies.
CC Genetics and Cytogenetics - General *03502
Biochemical Methods - General *10050
Biochemical Methods - Nucleic Acids, Purines and Pyrimidines *10052
Biochemical Studies - General *10060
Biochemical Studies - Nucleic Acids, Purines and Pyrimidines *10062
BC Hominidae 86215
IT Major Concepts
Molecular Genetics (Biochemistry and Molecular Biophysics)
IT Methods & Equipment
capillary electrophoresis **microchip**; microelectronic miniaturization: molecular diagnostic **method**; nucleotide sequence **analysis**: molecular diagnostic **method**; polymerase chain reaction: genetic **method**; DNA **microchip**
IT Miscellaneous Descriptors
molecular diagnostics: automation, clinical application
ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
human (Hominidae): patient
ORGN Organism Superterms
Animals; Chordates; Humans; Mammals; Primates; Vertebrates

L80 ANSWER 17 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1998:189683 BIOSIS
DN **PREV199800189683**
TI The **Biochip**. A new membrane bioreactor system for the cultivation of animal cells in defined tissue-like cell densities.
AU Seewoster, Thomas (1); Wilmsmann, Sandra; Werner, Andreas; Lehmann, Jurgen
CS (1) BASF Bioresearch Corp., PD Dep., 100 Research Drive, Worcester, MA 01605-4314 USA
SO Prokop, A. [Editor]; Hunkeler, D. [Editor]; Cherrington, A. D. [Editor]. Annals of the New York Academy of Sciences, (Dec. 31, 1997) Vol. 831, pp. 244-248. Annals of the New York Academy of Sciences; Bioartificial organs: Science, medicine, and technology.
Publisher: New York Academy of Sciences 2 East 63rd Street, New York, New York 10021, USA.
Meeting Info.: Conference Nashville, Tennessee, USA July 21-26, 1996 New

York Academy of Science
. ISSN: 0077-8923. ISBN: 1-57331-098-0.
DT Book; Conference
LA English
CC **Cytology and Cytochemistry - General *02502**
Biophysics - General Biophysical Studies *10502
Biophysics - Membrane Phenomena *10508
Biophysics - Bioengineering *10511
General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals *00520
BC Cricetidae 86310
IT Major Concepts
Cell Biology; Equipment, Apparatus, Devices and Instrumentation; Membranes (Cell Biology)
IT Miscellaneous Descriptors
biochip: membrane bioreactor system; cell cultivation: tissue-like density; Book Chapter; Meeting Paper
ORGN Super Taxa
Cricetidae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
CHO (Cricetidae): Chinese hamster ovary cells
ORGN Organism Superterms
Animals; Chordates; Mammals; Nonhuman Mammals; Nonhuman Vertebrates; Rodents; Vertebrates

L80 ANSWER 18 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1995:426078 BIOSIS
DN **PREV199598440378**
TI Towards a neural cell-based **biochip** sensor.
AU Makohliso, S. A. (1); Giovongrandi, L.; Buhlmann, H. J.; Dutoit, M.; Aebischer, P. (1)
CS (1) Univ. Lausanne Med. Sch., Lausanne Switzerland
SO Society for Neuroscience Abstracts, (1995) Vol. 21, No. 1-3, pp. 63.
Meeting Info.: 25th Annual Meeting of the Society for Neuroscience San Diego, California, USA November 11-16, 1995
ISSN: 0190-5295.
DT Conference
LA English
CC General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520
Cytology and Cytochemistry - Animal *02506
Biophysics - General Biophysical Techniques *10504
Biophysics - Membrane Phenomena 10508
Nervous System - Physiology and Biochemistry *20504
BC Muridae *86375
IT Major Concepts
Cell Biology; **Methods** and Techniques; Nervous System (Neural Coordination)
IT Miscellaneous Descriptors
MEETING ABSTRACT; MEETING POSTER; MEMBRANE VARIATION; NEUROTRANSMISSION
ORGN Super Taxa
Muridae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
rat (Muridae)
ORGN Organism Superterms
animals; chordates; mammals; nonhuman mammals; nonhuman vertebrates; rodents; vertebrates

L80 ANSWER 19 OF 19 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1993:440187 BIOSIS
DN **PREV199345075812**
TI How to make a **biochip**.
AU Karasev, V. A. (1); Stefanov, V. E.; Luchinin, V. V. (1)
CS (1) St. Petersburg Electrotech. Inst., St. Petersburg 197376 Russia
SO Biotekhnologiya, (1993) Vol. 0, No. 2, pp. 3-15.
ISSN: 0234-2758.

DT Article
LA Russian
SL Russian; English
CC Methods, Materials and Apparatus, General - Laboratory Apparatus 01006
Mathematical Biology and Statistical Methods 04500
Biochemical Methods - General *10050
Biochemical Methods - Proteins, Peptides and Amino Acids *10054
Biochemical Studies - General *10060
Biochemical Studies - Proteins, Peptides and Amino Acids *10064
Biophysics - General Biophysical Studies 10502
Biophysics - General Biophysical Techniques 10504
Biophysics - Molecular Properties and Macromolecules *10506
Biophysics - Bioengineering *10511
Enzymes - Methods 10804
Enzymes - Chemical and Physical *10806
IT Major Concepts
Biochemistry and Molecular Biophysics; Enzymology (Biochemistry and Molecular Biophysics); General Life Studies; **Methods** and Techniques
IT Industry
biotechnology industry
IT Miscellaneous Descriptors
ENZYME ACTIVITIES; **PROTEINS**

=> fil medline
FILE 'MEDLINE' ENTERED AT 11:56:41 ON 06 FEB 2002

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The OLDMEDLINE file segment now contains data from 1958 through 1965. Enter HELP CONTENT for details.

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=> d all tot

L120 ANSWER 1 OF 12 MEDLINE
AN 2001128581 MEDLINE
DN **21010455** PubMed ID: **11128941**
TI **Microchip** devices for high-efficiency separations.
AU Culbertson C T; Jacobson S C; Ramsey J M
CS Oak Ridge National Laboratory, Tennessee 37831-6142, USA.
SO ANALYTICAL CHEMISTRY, **(2000 Dec 1)** 72 (23) 5814-9.
Journal code: 4NR; 0370536. ISSN: 0003-2700.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
EM 200103
ED Entered STN: 20010404
Last Updated on STN: 20010404
Entered Medline: 20010301

AB We have fabricated a 25-cm-long spiral-shaped separation **channel** on a glass **microchip** with a footprint of only 5 cm x 5 cm. Electrophoretic separation efficiencies for dichlorofluoroscein (DCF) on this **chip** exceeded 1,000,000 theoretical plates and were achieved in under 46 s at a detection point 22.2 cm from the injection cross. The number of theoretical plates increased linearly with the applied voltage, and at a separation field strength of 1,170 V/cm, the rate of plate generation was approximately 21,000 plates/s. The large radii of curvature of the turns minimized the analyte dispersion introduced by the **channel** geometry as evidenced by the fact that the effective diffusion coefficient of DCF was within a few percent of that measured on a **microchip** with a straight separation **channel** over a wide range of electric field strengths. A micellar electrokinetic chromatography separation of 19 tetramethylrhodamine-labeled amino acids was accomplished in 165 s with an average plate number of 280,000. The minimum resolution between adjacent peaks for this separation was 1.2.

L120 ANSWER 2 OF 12 MEDLINE
AN 2000266372 MEDLINE
DN **20266372** PubMed ID: **10792056**
TI Automated parallel DNA sequencing on multiple **channel** **microchips**.
AU Liu S; Ren H; Gao Q; Roach D J; Loder R T Jr; Armstrong T M; Mao Q; Blaga I; Barker D L; Jovanovich S B
CS Molecular Dynamics/Amersham Pharmacia Biotech, Sunnyvale, CA 94086, USA.. sharong.liu@am.apbiotech.com
NC R01HG01775-03 (NHGRI)
R43HG02980-01 (NHGRI)
SO PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, **(2000 May 9)** 97 (10) 5369-74.
Journal code: PV3; 7505876. ISSN: 0027-8424.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200006
ED Entered STN: 20000622
Last Updated on STN: 20000622
Entered Medline: 20000613
AB We report automated DNA sequencing in 16-**channel** **microchips**. A **microchip** prefilled with sieving matrix is aligned on a heating plate affixed to a movable platform. Samples are loaded into sample reservoirs by using an eight-tip pipetting device, and the **chip** is docked with an **array** of electrodes in the focal plane of a four-color scanning detection system. Under computer control, high voltage is applied to the appropriate reservoirs in a programmed sequence that injects and separates the DNA samples. An integrated four-color confocal fluorescent detector automatically scans all 16 **channels**. The system routinely yields more than 450 bases in 15 min in all 16 **channels**. In the best case using an automated base-calling program, 543 bases have been called at an accuracy of >99%. Separations, including automated **chip** loading and sample injection, normally are completed in less than 18 min. The advantages of DNA sequencing on capillary electrophoresis **chips** include uniform signal intensity and tolerance of high DNA template concentration. To understand the fundamentals of these unique features we developed a theoretical treatment of cross-**channel** **chip** injection that we call the differential concentration effect. We present experimental evidence consistent with the predictions of the theory.
CT Check Tags: Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.
Automation: IS, instrumentation
Automation: MT, methods
Base Sequence
Equipment Design
Molecular Sequence Data

***Oligonucleotide Array Sequence Analysis: MT, methods**
Reproducibility of Results
Sequence Analysis, DNA: IS, instrumentation
***Sequence Analysis, DNA: MT, methods**
Templates

L120 ANSWER 3 OF 12 MEDLINE
AN 1999274037 MEDLINE
DN **99274037** PubMed ID: **10344240**
TI **Microchannel** networks for electrophoretic separations.
AU Rossier J S; Schwarz A; Reymond F; Ferrigno R; Bianchi F; Girault H H
CS Laboratoire d'Electrochimie, Ecole Polytechnique Federale de Lausanne, Switzerland.
SO ELECTROPHORESIS, **(1999 Apr-May)** 20 (4-5) 727-31.
Journal code: ELE; 8204476. ISSN: 0173-0835.
CY GERMANY: Germany, Federal Republic of
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199907
ED Entered STN: 19990806
Last Updated on STN: 19990806
Entered Medline: 19990729
AB UV excimer laser photoablation was used to micro-machine polymer substrates not only to drill **microchannel** structures but also to change the surface physical properties of the substrates. We first describe how UV laser photoablation can be used for the patterning of biomolecules on a polymer and discuss parameters such as surface coverage of active antibodies and equilibration time. Secondly, we show how to design a single-use capillary electrophoresis system comprising an on-**chip** injector, column and electrochemical detector. The potential of this disposable plastic device is discussed and briefly compared to classical systems. Finally, preliminary results on protein separation by isoelectric focusing on a disposable **microchip** are presented.
CT Check Tags: Support, Non-U.S. Gov't
Adsorption
***Electrophoresis, Capillary: MT, methods**
***Isoelectric Focusing: MT, methods**
Lasers
Polyethylene Terephthalates
Polymers
***Proteins: IP, isolation & purification**
Ultraviolet Rays
CN 0 (Polyethylene Terephthalates); 0 (Polymers); 0 (Proteins)

L120 ANSWER 4 OF 12 MEDLINE
AN 1999143969 MEDLINE
DN **99143969** PubMed ID: **9989377**
TI Optimization of high-speed DNA sequencing on microfabricated capillary electrophoresis **channels**.
AU Liu S; Shi Y; Ja W W; Mathies R A
CS Department of Chemistry, University of California, Berkeley 94720, USA.
NC HG01399 (NHGRI)
SO ANALYTICAL CHEMISTRY, **(1999 Feb 1)** 71 (3) 566-73.
Journal code: 4NR; 0370536. ISSN: 0003-2700.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199903
ED Entered STN: 19990324
Last Updated on STN: 20000303
Entered Medline: 19990305
AB DNA sequencing separations have been performed in microfabricated electrophoresis **channels** with the goal of determining whether high-quality sequencing is feasible with these microdevices. The

separation matrix, separation temperature, **channel** length and depth, injector size, and injection parameters were optimized. DNA fragment sizing separations demonstrated that 50-micron-deep **channels** provide the best sensitivity for our detection configuration. One-color sequencing separations of single-stranded M13mp18 DNA on 3% linear polyacrylamide (LPA) were used to optimize the twin-T injector size, injection conditions, and temperature. The best one-color separations were observed with a 250-micron twin-T injector, an injection time of 60 s, and a temperature of 35 degrees C. The first 500 bases appeared in 9.2 min with a resolution of > 0.5, and the separation extended to 700 bases. The best four-color sequencing separations were performed using 4% LPA, a temperature of 40 degrees C, and a 100-micron twin-T injector. These four-color runs were complete in only 20 min, could be automatically base-called using BaseFinder to over 600 bp after the primer, and were 99.4% accurate to 500 bp. These results significantly advance the quality of **microchip**-based electrophoretic sequencing and indicate the feasibility of performing high-speed genomic sequencing with microfabricated electrophoretic devices.

CT Check Tags: Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.
Base Sequence
*DNA: AN, analysis
DNA: IP, isolation & purification
Electrophoresis, Capillary: IS, instrumentation
***Electrophoresis, Capillary: MT, methods**
Molecular Sequence Data
***Sequence Analysis, DNA: MT, methods**

RN 9007-49-2 (DNA)

L120 ANSWER 5 OF 12 MEDLINE
AN 1999139865 MEDLINE
DN **99139865** PubMed ID: **9988626**
TI A controlled-release **microchip**.
AU Santini J T Jr; Cima M J; Langer R
CS Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139, USA.. rlanger@mid.edu
SO NATURE, **(1999 Jan 28)** 397 (6717) 335-8.
Journal code: NSC; 0410462. ISSN: 0028-0836.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199902
ED Entered STN: 19990223
Last Updated on STN: 19990223
Entered Medline: 19990211

AB Much previous work in methods of achieving complex drug-release patterns has focused on pulsatile release from polymeric materials in response to specific stimuli, such as electric or magnetic fields, exposure to ultrasound, light or enzymes, and changes in pH or temperature. An alternative method for achieving pulsatile release involves using microfabrication technology to develop active devices that incorporate micrometre-scale pumps, valves and flow **channels** to deliver liquid solutions. Here we report a solid-state silicon **microchip** that can provide controlled release of single or multiple chemical substances on demand. The release mechanism is based on the electrochemical dissolution of thin anode membranes covering microreservoirs filled with chemicals in solid, liquid or gel form. We have conducted proof-of-principle release studies with a prototype **microchip** using gold and saline solution as a model electrode material and release medium, and we have demonstrated controlled, pulsatile release of chemical substances with this device.

CT Biocompatible Materials
Delayed-Action Preparations
*Drug Delivery Systems: IS, instrumentation
Drug Implants
Electrochemistry

Fluorescein
Gold
Miniaturization
Silicon
Sodium Chloride
RN 2321-07-5 (Fluorescein); 7440-21-3 (Silicon); 7440-57-5 (Gold); 7647-14-5 (Sodium Chloride)
CN 0 (Biocompatible Materials); 0 (Delayed-Action Preparations); 0 (Drug Implants)

L120 ANSWER 6 OF 12 MEDLINE
AN 1998279688 MEDLINE
DN **98279688** PubMed ID: **9616716**
TI The **biochip**. A new membrane bioreactor system for the cultivation of animal cells in defined tissue-like cell densities.
AU Seewoster T; Wilmsmann S; Werner A; Lehmann J
CS Institute of Cell Culture Technology, Faculty of Technical Sciences, University of Bielefeld, Germany.. seewoet@BBC01.worcester.basf-corp.com
SO ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, **(1997 Dec 31)** 831 244-8.
Journal code: 5NM; 7506858. ISSN: 0077-8923.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199806
ED Entered STN: 19980708
Last Updated on STN: 19980708
Entered Medline: 19980624
AB Based on the **laminar** structure of the human liver tissue, a high cell density membrane bioreactor was developed that emulates a cell layer thickness of 40 microns. The **"biochip"** consists of a platinum-coated metal cell grid covered with two microfiltration membranes to form separate cell chambers of defined volume. Starting with a continuous chemostat process, the viability of a model suspension cell culture could be stabilized at 98%. In a second step these cells were transferred into the **biochip** system and were cultivated successfully for several days under tissue-like cell densities in a modified membrane holder under cross-flow conditions.
CT Check Tags: Animal; Human; Support, Non-U.S. Gov't
*Bioreactors
CHO Cells
Cell Count
Cells, Cultured
***Cytological Techniques**
Hamsters
Liver: CY, cytology
*Membranes, Artificial
Ultrafiltration

L120 ANSWER 7 OF 12 MEDLINE
AN 1998189296 MEDLINE
DN **98189296** PubMed ID: **9514776**
TI Integrated cell isolation and polymerase chain reaction analysis using silicon microfilter chambers.
AU Wilding P; Kricka L J; Cheng J; Hvichia G; Shoffner M A; Fortina P
CS Department of Pathology and Laboratory Medicine, University of Pennsylvania, Philadelphia 19104, USA.
SO ANALYTICAL BIOCHEMISTRY, **(1998 Mar 15)** 257 (2) 95-100.
Journal code: 4NK; 0370535. ISSN: 0003-2697.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199805
ED Entered STN: 19980609

Last Updated on STN: 19980609
Entered Medline: 19980527

AB White blood cells are isolated from whole blood in silicon-glass 4.5-microliter **microchips** containing a series of 3.5-micron feature-sized 'weir-type' filters, formed by an etched silicon dam spanning the flow chamber. Genomic DNA targets, e.g., dystrophin gene, can be directly amplified using the polymerase chain reaction (PCR) from the white cells isolated on the filters. This dual function **microchip** provides a means to simplify nucleic acid analyses by integrating in a single device two key steps in the analytical procedure, namely, cell isolation and PCR.

CT Check Tags: Human; Support, Non-U.S. Gov't
Cell Separation: MT, methods
DNA: AN, analysis
Dystrophin: BL, blood
Dystrophin: GE, genetics
Erythrocytes: CY, cytology
Erythrocytes: ME, metabolism
Glass
Hemoglobins: ME, metabolism
Leukocytes: CH, chemistry
***Leukocytes: CY, cytology**
Micropore Filters
***Polymerase Chain Reaction: IS, instrumentation**
Polymerase Chain Reaction: MT, methods
Silicon

RN 7440-21-3 (Silicon); 9007-49-2 (DNA)
CN 0 (Dystrophin); 0 (Glass); 0 (Hemoglobins)

L120 ANSWER 8 OF 12 MEDLINE
AN 1998073055 MEDLINE
DN **98073055** PubMed ID: **9408757**
TI Matrix-based comparative genomic hybridization: **biochips** to screen for genomic imbalances.
AU Solinas-Toldo S; Lampel S; Stilgenbauer S; Nickolenko J; Benner A; Dohner H; Cremer T; Lichter P
CS Organisation komplexer Genome, Deutsches Krebsforschungszentrum, Heidelberg, Germany.
SO GENES, CHROMOSOMES AND CANCER, **(1997 Dec)** 20 (4) 399-407.
Journal code: AYV; 9007329. ISSN: 1045-2257.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199801
ED Entered STN: 19980129
Last Updated on STN: 19980129
Entered Medline: 19980113

AB Comparative genomic hybridization (CGH) to metaphase chromosomes has been widely used for the genome-wide screening of genomic imbalances in tumor cells. Substitution of the chromosome targets by a matrix consisting of an ordered set of defined nucleic acid target sequences would greatly enhance the resolution and simplify the analysis procedure, both of which are prerequisites for a broad application of CGH as a diagnostic tool. However, hybridization of whole genomic human DNA to immobilized single-copy DNA fragments with complexities below the megabase pair level has been hampered by the low probability of specific binding because of the high probe complexity. We developed a protocol that allows CGH to **chips** consisting of glass slides with immobilized target DNAs **arrayed** in small spots. High-copy-number amplifications contained in tumor cells were rapidly scored by use of target DNAs as small as a cosmid. Low-copy-number gains and losses were identified reliably by their ratios by use of chromosome-specific DNA libraries or genomic fragments as small as 75 kb cloned in PI or PAC vectors as targets, thus greatly improving the resolution achievable by chromosomal CGH. The ratios obtained for the same chromosomal imbalance by matrix CGH and by

chromosomal CGH corresponded very well. The new matrix CGH protocol provides a basis for the development of automated diagnostic procedures with **biochips** designed to meet clinical needs.

CT Check Tags: Human; Support, Non-U.S. Gov't
***Chromosome Aberrations: GE, genetics**
DNA Probes: DU, diagnostic use
DNA, Neoplasm: AN, analysis
Fluorescent Dyes: DU, diagnostic use
Gene Amplification
***Gene Dosage**
Gene Library
Microscopy, Confocal
*Neoplasms: GE, genetics
***Nucleic Acid Hybridization: MT, methods**
Tumor Cells, Cultured

CN 0 (DNA Probes); 0 (DNA, Neoplasm); 0 (Fluorescent Dyes)

L120 ANSWER 9 OF 12 MEDLINE
AN 97263259 MEDLINE
DN **97263259** PubMed ID: **9109354**
TI Transport, manipulation, and reaction of biological cells on-**chip** using electrokinetic effects.
AU Li P C; Harrison D J
CS Department of Chemistry, University of Alberta, Edmonton, Canada.
SO ANALYTICAL CHEMISTRY, **(1997 Apr 15)** 69 (8) 1564-8.
Journal code: 4NR; 0370536. ISSN: 0003-2700.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199705
ED Entered STN: 19970523
Last Updated on STN: 19980206
Entered Medline: 19970515
AB A microfluidic system was fabricated on a glass **chip** to study mobilization of biological cells on-**chip**. Electroosmotic and/or electrophoretic pumping were used to drive the cell transport within a network of capillary **channels**. Whole cells such as Saccharomyces cerevisiae, canine erythrocyte, and Escherichia coli were employed in this work. Photographs are presented to illustrate how cells are selected and transported from one location to another within the capillary network, with velocities up to about 0.5 mm/s in capillaries with a 15- x 55-microns cross section. The mixing of canine erythrocytes with the lysing agent sodium dodecyl sulfate, at an intersection within the **chip**, was performed to demonstrate that cell selection and subsequent reaction can be accomplished within the **microchip**.

CT Check Tags: Animal; In Vitro; Support, Non-U.S. Gov't
Biological Transport
*Cell Physiology
Cells: ME, metabolism
***Cells: PH, physiology**
Dogs
Erythrocytes: ME, metabolism
Erythrocytes: PH, physiology
Escherichia coli: ME, metabolism
Escherichia coli: PH, physiology
Micromanipulation
Saccharomyces cerevisiae: ME, metabolism
Saccharomyces cerevisiae: PH, physiology

L120 ANSWER 10 OF 12 MEDLINE
AN 96086385 MEDLINE
DN **96086385** PubMed ID: **7588514**
TI **Microchip** electrophoresis with sample stacking.
AU Jacobson S C; Ramsey J M
CS Chemical and Analytical Sciences Division, Oak Ridge National Laboratory,

TN 37831-6142, USA.
SO ELECTROPHORESIS, **(1995 Apr)** 16 (4) 481-6.
Journal code: ELE; 8204476. ISSN: 0173-0835.
CY GERMANY: Germany, Federal Republic of
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199512
ED Entered STN: 19960124
Last Updated on STN: 19960124
Entered Medline: 19951213
AB A fused quartz **microchip** with a serpentine column geometry is fabricated to perform rapid **microchip** electrophoresis of dansylated amino acids. A 67 mm separation column is constructed in a 7 x 10 mm area on a quartz substrate using standard photolithographic, etching and deposition techniques. Buffer and sample flows within the **channel** manifold are precisely controlled through potentials applied to the reservoirs. To enhance the detection limits, a stacking injection technique is used to concentrate the sample at the inlet of the separation column. The stacked injections exhibit high reproducibility (2.1% relative standard deviation in peak area). Using a separation length of 67 mm and a separation field strength of 1100 V/cm, separations are performed in < or = 15 s generating approximately 40,000 theoretical plates.
CT Check Tags: Support, Non-U.S. Gov't; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.
***Amino Acids: AN, analysis**
*Dansyl Compounds: AN, analysis
Electrophoresis: IS, instrumentation
***Electrophoresis: MT, methods**
Miniaturization
CN 0 (Amino Acids); 0 (Dansyl Compounds)

L120 ANSWER 11 OF 12 MEDLINE
AN 89220955 MEDLINE
DN **89220955** PubMed ID: **3508280**
TI The design of a **biochip**: a self-assembling molecular-scale memory device.
AU Robinson B H; Seeman N C
CS Department of Chemistry, University of Washington, Seattle 98195.
NC ES-00117 (NIEHS)
GM-29554 (NIGMS)
SO PROTEIN ENGINEERING, **(1987 Aug-Sep)** 1 (4) 295-300.
Journal code: PR1; 8801484. ISSN: 0269-2139.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198906
ED Entered STN: 19900306
Last Updated on STN: 19970203
Entered Medline: 19890608
AB A design for a **biochip** memory device based on known materials and existing principles is presented. The fabrication of this memory system relies on the self-assembly of the nucleic acid junction system, which acts as the scaffolding for a molecular wire consisting of polyacetylene-like units. A molecular switch to control current is described which is based on the formation of a charge-transfer complex. A molecular-scale bit is presented which is based on oxidation-reduction potentials of metal atoms or clusters. The readable 'bit' which can be made of these components has a volume of 3 x 10(7) A3, and should operate at electronic speeds over short distances.
CT Check Tags: Support, Non-U.S. Gov't; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.
***Computers**
*Electronics: IS, instrumentation

***Macromolecular Systems**
Nucleic Acids
CN 0 (Macromolecular Systems); 0 (Nucleic Acids)

L120 ANSWER 12 OF 12 MEDLINE
AN 87049957 MEDLINE
DN 87049957 PubMed ID: 3779047
TI The bacteriorhodopsin model membrane system as a prototype molecular computing element.
AU Hong F T
NC EY-03334 (NEI)
EY-04068 (NEI)
GM-25144 (NIGMS)
+
SO BIOSYSTEMS, **(1986)** 19 (3) 223-36.
Journal code: A6E; 0430773. ISSN: 0303-2647.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198701
ED Entered STN: 19900302
Last Updated on STN: 19970203
Entered Medline: 19870121
AB The quest for more sophisticated integrated circuits to overcome the limitation of currently available silicon integrated circuits has led to the proposal of using biological molecules as computational elements by computer scientists and engineers. While the theoretical aspect of this possibility has been pursued by computer scientists, the research and development of experimental prototypes have not been pursued with an equal intensity. In this survey, we make an attempt to examine model membrane systems that incorporate the protein pigment bacteriorhodopsin which is found in Halobacterium halobium. This system was chosen for several reasons. The pigment/membrane system is sufficiently simple and stable for rigorous quantitative study, yet at the same time sufficiently complex in molecular structure to permit alteration of this structure in an attempt to manipulate the photosignal. Several methods of forming the pigment/membrane assembly are described and the potential application to **biochip** design is discussed. Experimental data using these membranes and measured by a tunable voltage clamp method are presented along with a theoretical analysis based on the Gouy-Chapman diffuse double layer theory to illustrate the usefulness of this approach. It is shown that detailed layouts of the pigment/membrane assembly as well as external loading conditions can modify the time course of the photosignal in a predictable manner. Some problems that may arise in the actual implementation and manufacturing, as well as the use of existing technology in protein chemistry, immunology, and recombinant DNA technology are discussed.
CT Check Tags: Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.
***Bacteriorhodopsin**
***Computers**
Electronics
Light
Membrane Potentials
Membranes
Models, Biological
Structure-Activity Relationship
Time Factors
RN 53026-44-1 (Bacteriorhodopsin)

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 12:14:42 ON 06 FEB 2002

FILE COVERS 1907 - 1 Feb 2002 VOL 136 ISS 6
FILE LAST UPDATED: 30 Jan 2002 (20020130/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

The P indicator for Preparations was not generated for all of the CAS Registry Numbers that were added to the CAS files between 12/27/01 and 1/23/02. As of 1/23/02, the situation has been resolved. Searches and/or SDIs in the H/Z/CA/CAplus files incorporating CAS Registry Numbers with the P indicator executed between 12/27/01 and 1/23/02 may be incomplete. See the NEWS message on this topic for more information.

=> d all tot

L130 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:654880 HCAPLUS
DN **135:207841**
TI Method for detecting **protein** using **protein chip**
IN Makino, Yoshihiko; Ogawa, Masashi; Takagi, Makoto; Takenaka, Shigeo
PA Fuji Photo Film Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM G01N027-327
ICS C07K017-00; G01N027-416; G01N033-543; G01N033-566
CC **9-1** (Biochemical Methods)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001242116	A2	20010907	JP 2000-57602	20000302

AB A method is provided for detecting a **protein** using a **protein chip** in order to perform as a part of **protein** research an anal. of the interaction of the **protein** with other **proteins** utilizing an electrochem. technique. In this **protein chip**, a **protein** is immobilized on a baseplate surface, and the sample **proteins** are labeled with an electrochem. active substance. Then, the **protein** in the sample capable of forming a specific bond with the **protein** on the baseplate surface is electrochem. detected.
ST **protein chip** interaction detection electrochem analysis
IT Biotechnology
(**biochips**; method for detecting **protein** using **protein chip**)
IT **Coating** process
Electrochemical analysis

Electrodes
Immobilization, biochemical
Ionic strength
Molecular association
Sulfhydryl group
Temperature
(method for detecting **protein** using **protein** **chip**)

IT **Proteins**, general, analysis
RL: ANT (Analyte); ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process); USES (Uses)
(method for detecting **protein** using **protein** **chip**)

IT 7440-57-5, Gold, uses
RL: DEV (Device component use); USES (Uses)
(method for detecting **protein** using **protein** **chip**)

L130 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:318936 HCAPLUS
DN **134:363475**
TI Adsorption of avidin on microfabricated surfaces for protein **biochip** applications
AU Bashir, R.; Gomez, R.; Sarikaya, A.; Ladisch, M. R.; Sturgis, J.; Robinson, J. P.
CS School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN, 47907, USA
SO Biotechnol. Bioeng. (2001), 73(4), 324-328
CODEN: BIBIAU; ISSN: 0006-3592
PB John Wiley & Sons, Inc.
DT Journal
LA English
CC **9-1** (Biochemical Methods)
AB The adsorption of the **protein** avidin from hen egg white on patterns of silicon dioxide and platinum surfaces on a **microchip** and the use of fluorescent microscopy to detect binding of biotin are described. A silicon dioxide **microchip** was formed using plasma-enhanced chem. vapor deposition while platinum was deposited using radiofrequency sputtering. After cleaning using a plasma arc, the **chips** were placed into solns. contg. avidin or bovine serum albumin. The avidin was adsorbed onto the **microchips** from phosphate-buffered saline (PBS) or from PBS to which ammonium sulfate had been added. Avidin was also adsorbed onto bovine serum albumin (BSA)-**coated** surfaces of oxide and platinum. Fluorescence microscopy was used to confirm adsorption of labeled **protein**, or the binding of fluorescently labeled biotin onto previously adsorbed, unlabeled avidin. When labeled biotin in PBS was presented to avidin adsorbed onto a BSA-**coated** **microchip**, the fluorescence signal was significantly higher than for avidin adsorbed onto the **biochip** alone. The results show that a simple, low-cost adsorption process can deposit active **protein** onto a **chip** in an approach that has potential application in the development of **protein** **biochips** for the detection of biol. species.
ST avidin adsorption protein **biochip**
IT Sputtering
(avidin adsorption on microfabricated surfaces for protein **biochip** applications)
IT Proteins, general, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(avidin adsorption on microfabricated surfaces for protein **biochip** applications)
IT Avidins
RL: PRP (Properties)
(avidin adsorption on microfabricated surfaces for protein

biochip applications)
IT Biotechnology
(**biochips**; avidin adsorption on microfabricated surfaces for protein **biochip** applications)
IT Vapor deposition process
(plasma; avidin adsorption on microfabricated surfaces for protein **biochip** applications)
IT Adsorption
(protein; avidin adsorption on microfabricated surfaces for protein **biochip** applications)
IT 7440-06-4, Platinum, uses 7631-86-9, Silicon dioxide, uses
RL: DEV (Device component use); USES (Uses)
(avidin adsorption on microfabricated surfaces for protein **biochip** applications)
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Ayliffe, H; Journal of Microelectromechanical Systems 1999, V8(1), P50
(2) Bollag, D; Protein Methods 2nd ed 1994, P394
(3) Borkholder, D; Proceedings of the annual international conference of the IEEE Engineering in Medicine and Biology 1996, P106
(4) Britland, S; Biotechnol Prog 1992, V8, P155 HCAPLUS
(5) Fodor, S; Science 1991, V251, P767 HCAPLUS
(6) Fukuzaki, S; J Ferment Bioeng 1996, V81, P163 HCAPLUS
(7) Harrison, F; Sens Actuat B 1996, V33, P105
(8) Heller, M; IEEE Eng Med Biol 1996, V15, P100
(9) Lahiri, J; A Strategy for the generation of surfaces presenting ligands for studies of binding based on an active ester as a common reactive intermediate: A surface plasmon resonance study 1999, V71, P777 HCAPLUS
(10) Mooney, J; Proc Natl Acad Sci 1996, V93, P12287 HCAPLUS
(11) Nicolau, D; Langmuir 1998, V14, P1927 HCAPLUS
(12) Roscoe, S; J Coll Interf Sci 1992, V152, P429 HCAPLUS
(13) Whaley, S; Nature 2000, V405, P665 HCAPLUS
(14) wilchek, M; Avidin-biotin technology 1990, P85
(15) Williams, R; Biosens Bioelectron 1994, V9, P159 HCAPLUS
(16) Woolley, A; Anal Chem 1995, V67, P3676 HCAPLUS

L130 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:152727 HCAPLUS
DN **134:190331**
TI Multipurpose diagnostic systems using **protein chips**
IN Kim, Sun-young; Yoon, Keejung; Park, Eun-jin
PA Diachip Limited, S. Korea
SO PCT Int. Appl., 59 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C07K017-00
ICS G01N033-53; G01N033-533; G01N033-533
CC **9-1** (Biochemical Methods)
Section cross-reference(s): 1, 7, 14, 15
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001014425	A1	20010301	WO 2000-KR928	20000819

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRAI KR 1999-34427 A 19990819
AB The present invention provides **protein chips** on which high d. of **protein** probe **arrays** are fixed, a method

for manufg. the **protein chips**, atomized diagnostic systems comprising the **protein chips** and the use thereof. The highly integrated structure of the **protein chip** makes a biochem. or an immunol. assay faster, suitable for automation, precise and easy to handle. The usage of the **protein chip** encompasses clin. diagnosis, researches for the kinetics of enzymic reactions and screening antagonists or ligands which bind to the interested receptors. In particular, the **protein chip** enables multipurpose diagnosis of various diseases for a no. of patients even by a test. Recombinant antigens from hepatitis C virus or from HIV-1 were immobilized on glass slides **coated** with aminoalkylsilane to make **protein chips** which were used to detect antibodies in blood serum samples. FITC-conjugated anti-human IgG and high-speed fluorescence scanning were used in the detection.

ST multipurpose diagnostic system **protein chip**; antibody hepatitis C virus immunodiagnosis **chip**; HIV1 antibody blood antigen **chip** fluorescence scanning

IT **Proteins**, specific or class
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); DEV (Device component use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(NS3 (nonstructural, 3), of Korean hepatitis C virus; multipurpose diagnostic systems using **protein chips**)

IT Silanes
RL: DEV (Device component use); USES (Uses)
(aminoalkyl; multipurpose diagnostic systems using **protein chips**)

IT Immunoassay
(app.; multipurpose diagnostic systems using **protein chips**)

IT Apparatus
(automated, automatic **microarrayer** system, for prepg. **protein chips**; multipurpose diagnostic systems using **protein chips**)

IT Analytical apparatus
(automated; multipurpose diagnostic systems using **protein chips**)

IT Analysis
Analytical apparatus
(biochem.; multipurpose diagnostic systems using **protein chips**)

IT Biotechnology
(**biochips**; multipurpose diagnostic systems using **protein chips**)

IT Fluorescent substances
(conjugates with antibodies; multipurpose diagnostic systems using **protein chips**)

IT Antibodies
RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(conjugates, with fluorescent substances; multipurpose diagnostic systems using **protein chips**)

IT Disease, animal
(diagnosis of; multipurpose diagnostic systems using **protein chips**)

IT Envelope **proteins**
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); DEV (Device component use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(gp41env, of HIV-1; multipurpose diagnostic systems using **protein chips**)

IT Antigens
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); DEV (Device component use); RCT (Reactant); THU (Therapeutic use); ANST

(Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(hepatitis C core, fusion **proteins** with NS3 antigen; multipurpose diagnostic systems using **protein chips**)

IT Optical scanners
(high-speed fluorescence; multipurpose diagnostic systems using **protein chips**)

IT **Proteins**, specific or class
RL: ARG (Analytical reagent use); BPR (Biological process); DEV (Device component use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(immobilized, **chips**; multipurpose diagnostic systems using **protein chips**)

IT Enzymes, biological studies
RL: ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BPR (Biological process); DEV (Device component use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(immobilized; multipurpose diagnostic systems using **protein chips**)

IT Antigens
Receptors
RL: ARG (Analytical reagent use); BPR (Biological process); DEV (Device component use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(immobilized; multipurpose diagnostic systems using **protein chips**)

IT Diagnosis
(immunodiagnosis; multipurpose diagnostic systems using **protein chips**)

IT Polysiloxanes, uses
RL: DEV (Device component use); USES (Uses)
(modified; multipurpose diagnostic systems using **protein chips**)

IT Alkyl groups
Biosensors
Blood analysis
Buffers
Computers
Diagnosis
Drug screening
Enzyme kinetics
Fluorescence microscopy
Functional groups
Human immunodeficiency virus 1
Immunoassay
Membranes, nonbiological
(multipurpose diagnostic systems using **protein chips**)

IT **Proteins**, general, analysis
RL: ANT (Analyte); BPR (Biological process); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(multipurpose diagnostic systems using **protein chips**)

IT Antibodies
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(multipurpose diagnostic systems using **protein chips**)

IT Carbohydrates, uses
Glass, uses
Metals, uses
Plastics, uses
Polymers, uses
RL: DEV (Device component use); USES (Uses)

(multipurpose diagnostic systems using **protein chips**
)
IT Fusion **proteins** (chimeric **proteins**)
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); DEV (Device component use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(of NS3 and core antigens of hepatitis C virus; multipurpose diagnostic systems using **protein chips**)
IT gag **proteins**
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); DEV (Device component use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(p24gag, of HIV-1; multipurpose diagnostic systems using **protein chips**)
IT Animal
Bacteria (Eubacteria)
Fungi
Hepatitis B virus
Hepatitis C virus
Human immunodeficiency virus
Plant (Embryophyta)
Virus
(probe **proteins** as antigens of; multipurpose diagnostic systems using **protein chips**)
IT Receptors
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(screening for antagonists or ligands binding to; multipurpose diagnostic systems using **protein chips**)
IT Ligands
RL: ANT (Analyte); BPR (Biological process); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(screening for; multipurpose diagnostic systems using **protein chips**)
IT Plates
(tetragonal; multipurpose diagnostic systems using **protein chips**)
IT 497-19-8, Sodium carbonate, uses 7632-05-5, Sodium phosphate
RL: NUU (Other use, unclassified); USES (Uses)
(buffer; multipurpose diagnostic systems using **protein chips**)
IT 64-17-5, Ethanol, uses
RL: NUU (Other use, unclassified); USES (Uses)
(in **protein** immobilization; multipurpose diagnostic systems using **protein chips**)
IT 27072-45-3D, Fluorescein isothiocyanate, antibody conjugates
RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(multipurpose diagnostic systems using **protein chips**
)
IT 116-14-3, Tetrafluoroethylene, uses 7440-44-0D, Carbon, compds. 7631-86-9, Silica, uses 7631-86-9D, Silica, derivs. 9003-07-0, Polypropylene 9003-53-6, Polystyrene
RL: DEV (Device component use); USES (Uses)
(multipurpose diagnostic systems using **protein chips**
)
IT 327634-78-6, 1: PN: WO0114425 SEQID: 1 unclaimed DNA 327634-79-7, 2: PN: WO0114425 SEQID: 2 unclaimed DNA 327634-80-0 327634-81-1 327634-82-2 327634-83-3 327634-84-4 327634-85-5 327634-86-6 327634-87-7 327634-88-8 327634-89-9
RL: PRP (Properties)
(unclaimed nucleotide sequence; multipurpose diagnostic systems using **protein chips**)
RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

(1) Arris Pharmaceutical; US 5591646 A 1997 HCAPLUS
(2) B-E Safe Inc; WO 9849557 A 1998 HCAPLUS
(3) Holt; NUCLEIC ACIDS RES 2000, V28, P72
(4) Joos; ELECTROPHORESIS 2000, V21, P2641 HCAPLUS
(5) Lueking; ANAL BIOCHEM 1999, V270, P103 HCAPLUS
(6) Mendoza; BIOTECHNIQUES 1999, V27, P778 HCAPLUS
(7) Nec Corp; EP 0818467 A2 1998 HCAPLUS

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     (FILE 'HOME' ENTERED AT 10:25:39 ON 06 FEB 2002)
               SET COST OFF

     FILE 'HCAPLUS' ENTERED AT 10:25:49 ON 06 FEB 2002
               E SHVETS I/AU
L1          114 S E3-E14
               E KASHANIN D/AU
               E KELLEHER D/AU
L2          130 S E3-E9,E21,E22
               E WILLIAMS V/AU
L3          141 S E3-E22
               E VOLKOV Y/AU
L4           10 S E3-E4,E28
L5          389 S L1-L4
L6            5 S L5 AND ?ASSAY?
L7            4 S L5 AND (BIOCHEM?(L)METHOD?)/SC,SX
L8            9 S L6,L7
               E ASSAY/CT
               E E5+ALL
L9            0 S L1 AND L2-L4
L10           6 S L2 AND L3,L4
L11           0 S L3 AND L4
L12           4 S L5 AND ?MIGRAT?

     FILE 'WPIX' ENTERED AT 10:30:12 ON 06 FEB 2002
               E SHVETS I/AU
L13          24 S E3-E10
               E KASHANIN D/AU
               E KELLEHER D/AU
L14           7 S E3-E5
               E WILLIAMS V/AU
L15          24 S E3-E16
               E VOLKOV Y/AU
L16         240 S E4-E18
L17         295 S L13-L16
L18           8 S L17 AND G01N/IC,ICM,ICS,ICA,ICI
L19           1 S L17 AND C12Q/IC,ICM,ICS,ICA,ICI
L20           9 S L18,L19
L21           2 S (B12-K04? OR C12-K04? OR D05-H09)/MC AND L17
L22           2 S J04-?/MC AND L17
L23           9 S (Q233 OR M424 OR M740 OR N136)/M0,M1,M2,M3,M4,M5,M6 AND L17
L24           6 S L21-L23 NOT L20

     FILE 'BIOSIS' ENTERED AT 10:37:35 ON 06 FEB 2002
               E SHVETS I/AU
L25          11 S E3-E6
               E KASHANIN D/AU
               E KELLEHER D/AU
L26         309 S E3-E12,E20,E21
               E WILLIAMS V/AU
L27         220 S E3-E21
               E VOLKOV Y/AU
L28          24 S E3-E8,E21
L29         556 S L25-L28
L30         198 S L29 AND (01004 OR 01006 OR 01052 OR 01054 OR 0250# OR 03502 O
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L31          234 S L29 AND 00520/CC
L32          241 S L29 AND CONFERENCE/DT
L33          305 S L29 NOT L31,L32
L34          223 S L33 NOT ARTICLE/DT
L35          217 S L34 NOT (PATENT OR GENERAL REVIEW)/DT
L36          215 S L35 NOT BOOK/DT
L37          251 S L31,L32
L38            3 S L37 AND ((FLOW CYTOMET? OR GENETIC)()ANALYSIS)/TI
L39            2 S L38 NOT FORCES/TI
L40          111 S L29 AND 02508/CC
L41           54 S L40 NOT L37
L42           11 S L41 AND (ADHESION MOLECULES OR CELL SEPARATION PROCEDURE OR E
L43            2 S L39 AND L25-L42

     FILE 'BIOSIS' ENTERED AT 10:55:47 ON 06 FEB 2002
L44            0 S L25 AND L26-L28
L45            8 S L26 AND L27-L28
L46            0 S L27 AND L28
L47       111633 S 01004/CC
L48       204437 S 01054/CC
L49      3165057 S 0250#/CC
L50       404407 S 32500/CC
L51       375693 S 32600/CC
L52       260501 S 12100/CC AND L47-L51
L53          106 S ?BIOCHIP?
L54            0 S L53 AND L29
L55           19 S L53 AND L47-L51
L56            0 S L53 AND L52
L57            3 S BIO CHIP?
L58            0 S L57 AND L29
L59            1 S L57 AND L47-L52
L60           20 S L55,L59
L61         1165 S BIOINFORMATIC? OR BIO INFORMATIC?
L62         3017 S (HIGH OR RAPID)()(THROUGHPUT OR THROUGH PUT)
L63         6344 S (HIGH OR RAPID)()SPEED
L64         2280 S L47-L51 AND L61-L63
L65          498 S L61-L63 AND L52
L66            4 S L53,L57 AND L64-L65
L67           20 S L60,L66
L68           88 S L53,L57 NOT L67
L69           34 S L68 NOT AB/FA
                 SEL DN 8 19 23 24 28
L70            5 S L69 AND E1-E5
L71           54 S L68 NOT L69
                 SEL DN 9 11 17 19 21 36 41
L72            7 S L71 AND E6-E12
L73           12 S L70,L72
                 SEL DN L60 2 5 7 15 16 18 19
L74            7 S L60 AND E13-E19
L75           19 S L73,L74
L76           19 S L75 AND (?CHIP? OR ?ARRAY? OR HIGH(L)(THROUGHPUT OR THROUGH P
L77           18 S L76 AND (?ASSAY? OR METHOD? OR ANALY?)
L78            4 S L76 AND PROTEIN
L79            2 S L76 AND (10054 OR 10064)/CC
L80           19 S L76-L79

     FILE 'MEDLINE' ENTERED AT 11:26:18 ON 06 FEB 2002
L81           75 S BIOCHIP? OR BIO CHIP?
L82          428 S NANOCHIP? OR MICROCHIP? OR MICRO CHIP?
L83          494 S L81,L82
L84          339 S L83 AND PY<=2000
L85           58 S L84 NOT AB/FA
L86          281 S L84 NOT L85
L87           22 S L86 AND A11./CT
                 SEL DN 14 16 17 18
L88            4 S L87 AND E20-E27
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                E BIOLOGICAL TRANSPORT+ALL/CT
L89              3 S E4+NT AND L84
L90              2 S L89 NOT ELECTRONICS/TI
L91             63 S L84 AND D12./CT
L92              2 S L88,L90 AND L91
L93              5 S L88,L90,L92
L94             61 S L91 NOT L93
                   SEL DN 37 61
L95              2 S L94 AND E1-E4
L96              7 S L93,L95
L97             12 S L84 AND (MICROCHANNEL? OR MICRO CHANNEL?)
L98             53 S L84 AND ?CHANNEL?
L99              1 S L84 AND ?LAMINAR?
L100            54 S L97-L99
                   SEL DN 3 14 36 37 50 54
L101             6 S L100 AND E5-E16
L102            12 S L96,L101
L103             1 S L83 AND ELONGAT?
                   E ELONGAT?(L)?CHANNEL?
L104           386 S ELONGAT?(L)?CHANNEL?
L105             1 S L104 AND ?CHIP?
L106             6 S L104 AND ?ARRAY?
L107             7 S L105,L106
L108           216 S L104 AND A11./CT
L109           220 S L104 AND D12./CT
L110           290 S L108,L109
L111             4 S L110 AND L107
L112            12 S L102 AND L81-L111
L113            12 S L112 AND (?CHIP? OR ?CHANNEL? OR ?ARRAY?)
L114             8 S L113 AND (A11. OR  D12. OR D13.)/CT
L115             3 S L113 AND (E1. OR G5.)/CT
L116            10 S L114,L115
L117             2 S L113 AND L1./CT
L118            12 S L112-L117
L119             8 S L118 AND E5./CT
L120            12 S L118,L119

     FILE 'MEDLINE' ENTERED AT 11:56:41 ON 06 FEB 2002

     FILE 'HCAPLUS' ENTERED AT 11:57:14 ON 06 FEB 2002
L121          1497 S BIOCHIP? OR BIO CHIP?
L122          1199 S GENE(L)CHIP
L123          1260 S PROTEIN(L)CHIP
L124          2733 S L121-L123
L125           150 S L124 AND COAT?
L126            71 S L125 AND PROTEIN(L)COAT?
L127            38 S L126 AND 9/SC,SX
                   SEL DN 3 6 8
L128             3 S L127 AND E1-E3
L129             3 S L128 AND L121-L128
L130             3 S L129 AND (?CHIP? OR ?ARRAY? OR ?CHANNEL? OR ?RESERVOIR?)

     FILE 'HCAPLUS' ENTERED AT 12:14:42 ON 06 FEB 2002
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